Title (en)

Air-fuel ratio control using virtual exhaust gas sensor

Title (de)

Luft-Kraftstoffverhältnis-Regelung unter Benutzung eines virtuellen Abgassensors

Title (fr)

Commande du rapport air-carburant en utilisant un détecteur virtuel de gaz d'échappement

Publication

EP 1331384 A2 20030730 (EN)

Application

EP 02028335 A 20021217

Priority

JP 2002015762 A 20020124

Abstract (en)

A controller for controlling an air-fuel ratio of the engine is provided. An exhaust gas sensor is provided between an upstream catalyst disposed upstream of an exhaust pipe and a downstream catalyst disposed downstream of the exhaust pipe. A virtual exhaust gas sensor is virtually provided downstream of the downstream catalyst. After an operating state in which the air-fuel is lean is cancelled, or after a fuel cut is cancelled, an output of the virtual exhaust gas sensor is estimated based on a gas amount that contributes to reduction of the upstream and downstream catalysts and an output of the exhaust gas sensor provided between the upstream and downstream catalysts. The air-fuel ratio of the engine is controlled in accordance with the estimated output of the virtual exhaust gas sensor. Thus, the catalyst converter is appropriately reduced in accordance with a load of the engine and a state of the catalyst. When the reduction process is completed, an adaptive air-fuel ratio control based on the output of the exhaust gas sensor is started.

IPC 1-7

F02D 41/02; F01N 3/023

IPC 8 full level

F02D 45/00 (2006.01); **F01N 3/00** (2006.01); **F01N 3/24** (2006.01); **F01N 3/28** (2006.01); **F02D 41/02** (2006.01); **F02D 41/04** (2006.01); **F02D 41/12** (2006.01); **F02D 41/14** (2006.01); F01N 13/02 (2010.01)

CPC (source: EP US)

F01N 13/0097 (2014.06 - EP US); **F02D 41/027** (2013.01 - EP US); **F02D 41/126** (2013.01 - EP US); **F02D 41/1441** (2013.01 - EP US); **F02D 41/1458** (2013.01 - EP US); F02D 41/1402 (2013.01 - EP US); F02D 41/1403 (2013.01 - EP US); F02D 41/1456 (2013.01 - EP US); F02D 41/1475 (2013.01 - EP US); F02D 2041/1416 (2013.01 - EP US); F02D 2041/1423 (2013.01 - EP US); F02D 2041/1433 (2013.01 - EP US)

Citation (applicant)

- JP H0972235 A 19970318 - DENSO CORP
- JP 2913282 B2 19990628

Cited by

US10012165B2; WO2015181623A1

Designated contracting state (EPC)

DE GB

DOCDB simple family (publication)

EP 1331384 A2 20030730; **EP 1331384 A3 20080312**; **EP 1331384 B1 20090408**; CN 100339578 C 20070926; CN 1434198 A 20030806; DE 60231858 D1 20090520; JP 2003214228 A 20030730; JP 3811075 B2 20060816; US 2003139874 A1 20030724; US 6775608 B2 20040810

DOCDB simple family (application)

EP 02028335 A 20021217; CN 03102930 A 20030124; DE 60231858 T 20021217; JP 2002015762 A 20020124; US 34996603 A 20030124